

1843 2002 11 FEB 2002

FORM-PTO-1390
(Rev. 9-2001)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

033434-003

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.5)

10/049275

INTERNATIONAL APPLICATION NO.
PCT/NO00/00260 ✓

INTERNATIONAL FILING DATE
9 August 2000 ✓

PRIORITY DATE CLAIMED
10 August 1999 ✓

TITLE OF INVENTION

METHOD FOR STRENGTHENING A GEAR WHEEL, AND A GEAR WHEEL ✓

APPLICANT(S) FOR DO/EO/US

Bjorn EILERTSEN ✓

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☐ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
- ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
- ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☒ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
- ☒ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
- ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
- ☒ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

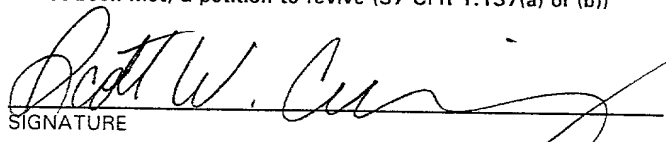
Items 11 to 20 below concern document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.
14. ☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information:

International Search Report, International Preliminary Examination Report, Written Opinion, Reply to Written Opinion, Form PCT/IB/304, Form PCT/IPEA/402, Change of Address of Applicant



21839

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) 10/049275		INTERNATIONAL APPLICATION NO. PCT/NO00/00260		ATTORNEY'S DOCKET NUMBER 033434-003	
21. <input checked="" type="checkbox"/> The following fees are submitted:				CALCULATIONS	PTO USE ONLY
Basic National Fee (37 CFR 1.492(a)(1)-(5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$1,040.00 (960) International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$890.00 (970) International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$740.00 (958) International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$710.00 (956) International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) \$100.00 (962)					
ENTER APPROPRIATE BASIC FEE AMOUNT =					
Surcharge of \$130.00 (154) for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)). 20 <input type="checkbox"/> 30 <input type="checkbox"/>				\$	--
Claims	Number Filed	Number Extra	Rate		
Total Claims	5 -20 =	0	X\$18.00 (966)	\$	0.00
Independent Claims	1 -3 =	0	X\$84.00 (964)	\$	0.00
Multiple dependent claim(s) (if applicable)			+ \$280.00 (968)	\$	--
TOTAL OF ABOVE CALCULATIONS =				\$	1,040.00
Reduction for 1/2 for filing by small entity, if applicable (see below).				+	\$ --
SUBTOTAL =				\$	1,040.00
Processing fee of \$130.00 (156) for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492(f)). 20 <input type="checkbox"/> 30 <input type="checkbox"/>				\$	--
TOTAL NATIONAL FEE =				\$	1,040.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 (581) per property				+	\$ 40.00
TOTAL FEES ENCLOSED =				\$	1,080.00
				Amount to be refunded:	\$
				charged:	\$
a. <input type="checkbox"/> Small entity status is hereby claimed. b. <input checked="" type="checkbox"/> A check in the amount of \$ <u>1,080.00</u> to cover the above fees is enclosed. c. <input type="checkbox"/> Please charge my Deposit Account No. <u>02-4800</u> in the amount of \$_____ to cover the above fees. A duplicate copy of this sheet is enclosed. d. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>02-4800</u> . A duplicate copy of this sheet is enclosed.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO: Ronald L. Grudziecki BURNS, DOANE, SWECKER & MATHIS, L.L.P. P.O. Box 1404 Alexandria, Virginia 22313-1404 (703) 836-6620					
				SIGNATURE  Scott W. Cummings NAME	
				41,567 REGISTRATION NUMBER	
				February 11, 2002 DATE	

Patent
Attorney's Docket No. 033434-003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	BOX PCT/US
)	
Bjørn EILERTSEN)	Group Art Unit: Unassigned
)	
Application No.: (Unassigned)	Examiner: Unassigned
International Application PCT/NO00/00260)	
)	
I.A. Filing Date: August 9, 2000)	
)	
For: METHOD FOR STRENGTHENING)	
A GEAR WHEEL, AND A GEAR)	
WHEEL)	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination of the above-identified application on the merits, please amend the application as follows.

IN THE ABSTRACT:

Please delete the existing Abstract and substitute the Abstract attached hereto as a separate sheet.

IN THE CLAIMS:

Please cancel claim 1 without prejudice or disclaimer.

Please replace claims 2-5 with the corresponding amended claims.

2. (Amended) A method according to claim 1, wherein the strengthening rings are shrink-fitted around the gear wheel in such manner that the strengthening rings will be firmly shrunk onto the gear wheel with a material-technical tensile/compressive strength within 80% of the 0.2% elastic elongation range of the material.

3. (Amended) A method according to claim 2, wherein during the sizing process the toothed rim of the driving gear is envisaged stretched out to a correspondingly larger circle, shrink fits being selected for this circle in accordance with the ISO tables of limits and fits, and that similar considerations are made for each strengthening ring.

4. (Amended) A gear wheel having surrounding strengthening rings connected to the gear wheel teeth, wherein each tooth is fixed like a theoretical beam between two extreme points in that two strengthening rings, shaped on their insides in conformity with the gear wheel teeth, are fitted around the gear wheel.

5. (Amended) A gear wheel according to claim 4, wherein the strengthening rings are shrink-fitted in such manner that the strengthening rings will be firmly shrunk onto the gear wheel with a material-technical tensile/compressive strength within 80% of the 0.2% elastic elongation range of the material.

Please add new claim 6 as follows:

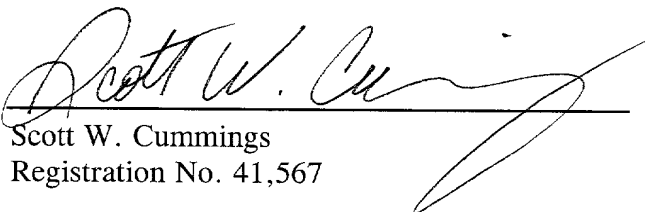
6. (New) A method for strengthening a gear wheel, wherein strengthening rings are placed around the gear wheel and connected to the gear wheel teeth, and wherein each tooth is fixed like a theoretical beam between two extreme points and two strengthening wheels each shaped on its inside in conformity with the gear wheel teeth, are shrink-fitted around the gear wheel.

REMARKS

Entry of the foregoing prior to an examination on the merits is respectfully requested.
The above amendments have been made to place the application in better form for examination.
An early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

By: 
Scott W. Cummings
Registration No. 41,567

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620

Date: February 11, 2002

Application No. PCT/NO00/00260
Attorney's Docket No. 033434-003
Page 1

Attachment to Preliminary Amendment dated February 11, 2002

Marked-up Claims 2-5

2. (Amended) A method according to claim 1, [characterised in that] wherein the strengthening rings [(3, 4)] are [secured] shrink-fitted around the gear wheel [(1)] in such manner that the strengthening rings [(3, 4)] will be firmly shrunk onto the gear wheel [(1)] with a material-technical tensile/compressive strength within 80 % of the 0.2 % elastic elongation range of the material [(steel)].

3. (Amended) A method according to claim 2, [characterized in that] wherein during the sizing process the toothed rim of the driving gear [(1)] is envisaged stretched out to a correspondingly larger circle, shrink fits being selected for this circle in accordance with the ISO tables of limits and fits, and that similar considerations are made for each strengthening ring [(3, 4)].

4. (Amended) A gear wheel having surrounding strengthening rings connected to the gear wheel teeth, wherein [(1), characterised in that] each tooth [(2)] is fixed like a theoretical beam between two extreme points in that two strengthening rings [(3, 4)], shaped on their insides in conformity with the gear wheel teeth [(2)], are fitted around the gear wheel.

5. (Amended) A gear wheel according to claim 4, [characterised in that] wherein the strengthening rings [(3, 4)] are shrink-fitted in such manner that the

Marked-up Claims 2-5

strengthening rings [(3, 4)] will be firmly shrunk onto the gear wheel [(1)] with a material-technical tensile/compressive strength within 80% of the 0.2% elastic elongation range of the material [(steel)].

METHOD FOR STRENGTHENING A GEAR WHEEL, AND A GEAR WHEEL

The invention relates to a method for strengthening a gear wheel.

5 The invention also relates to a gear wheel thus strengthened.

Gear wheels in cranes and lifting devices are highly stressed components. Experience has shown that, for example, driving gear wheels in jack-up systems for jack-up offshore platforms, driving gear wheels interacting with vertical toothed racks, have a
10 surprisingly short useful life. Their useful life is notably shorter than that of the interacting toothed racks, which is due to the fact that the gear wheel teeth are quite naturally exposed to a greater number of alternating loads than the teeth of the rack.

Studies have shown that the teeth of driving gear wheels in large structures are exposed
15 to motions that ultimately cause fracture in the root of the tooth.

It is an object of the invention to provide a method and an apparatus for strengthening gear wheels, particularly, but not exclusively, large driving gear wheels that are used in cranes and lifting devices.

20 Based on the acknowledgement of the fact that the teeth are subject to breakage as a consequence of the alternating motions in the tooth itself, most notably in the roots of the teeth, it is proposed according to the invention to fix each individual tooth in the gear wheel in the direction of circumference in order thereby to counteract the said tooth
25 motions during operations, i.e., that each individual tooth will be like a theoretical beam fixed at both ends.

According to the invention, a method is therefore proposed for strengthening a gear wheel, characterised in that each tooth is fixed like a theoretical beam between two
30 extreme points, in that two strengthening rings, each shaped on its inside in conformity with the gear wheel teeth, are placed around the gear wheel.

It is especially advantageous if the rings are secured around the gear wheel in such manner that the rings will be firmly shrunk onto the gear wheel with a material-
35 technical tensile/compressive strength within 80% of the 0.2% elastic elongation range of the material (steel).

According to the invention, a gear wheel is also proposed that is characterised in that each tooth is fixed like a theoretical beam between two extreme points, in that around each gear wheel there are fixed two strengthening rings, each shaped on its inside in conformity with the gear wheel teeth.

5

It is especially advantageous if the strengthening rings are shrunk on in such manner that the rings will remain firmly shrunk onto the gear wheel with a material-technical tensile/compressive strength within 80% of the 0.2% elastic elongation range of the material (steel).

10

Each individual strengthening ring is designed in principle like an internal ring gear having teeth intended for engagement in the tooth pockets of the gear wheel, with clearance towards the base of the teeth of the gear wheel or clearance towards the base of the teeth of both gear wheel and ring.

15

The invention can be carried out in a particularly advantageous way by envisaging the toothed rim of the driving gear stretched out to a correspondingly larger circle, shrink fits being chosen for this circle in accordance with the ISO tables of limits and fits, and by making similar considerations for the ring.

20

The invention will now be described in more detail with reference to the drawing, wherein:

Fig. 1 shows a gear wheel viewed looking towards the teeth;

25

Fig. 2 is a side view of a gear wheel;

Fig. 3 is a section taken from Fig. 1;

30 Fig. 4 is a section taken from Fig. 2;

Fig. 5 is a section of a gear wheel and ring in the area where they are secured together; and

35 Fig. 6 is another section of a gear wheel and ring in an area where they are secured together.

The gear wheel 1 shown in Figs. 1 and 2 has a plurality of teeth 2 around its circumference. At each end side of the gear wheel 1 there is shrink-fitted a strengthening ring 3 and 4 respectively. Each ring 3, 4 is made in the form of an internal gear wheel with teeth 5. The teeth are shaped to fit with the teeth 2 on the gear wheel 1, see in particular Fig. 4.

As can be seen from Fig. 1 and from the section in Fig. 3, each tooth 2 on the gear wheel 1 will be fixed like a beam between the two strengthening rings 3 and 4, and the rings 3, 4 will counteract motions of each individual tooth 2 in the direction of circumference when the teeth are subjected to forces in interaction with another set of teeth on a gear wheel or a toothed rack (not shown).

As shown in Fig. 4, a clearance 6, 7 is provided between the tooth crest and the tooth base on/in the gear wheel and ring. This ensures a best possible flank contact between the teeth 2 and 5 as well as a reduction in the stress of radial forces, see also Figs. 5 and 6. In Fig. 6 there is a clearance 8 only between ring-tooth crest and ring-tooth base.

In order to achieve the best possible effect, each individual strengthening ring 3, 4 is fitted on/around the gear wheel 1 by producing/utilising a tensile force within 80% of the permanent elongation limit of the material (steel). This is achieved by suitable sizing of each individual ring prior to fitting.

It is particularly expedient if, in this connection, it is possible to envisage the toothed rim stretched out to its correspondingly larger circle, shrink fits for this circle being selected in accordance with the ISO tables of limits and fits. Similar considerations are made for the strengthening rings.

The invention permits a reduction in the danger of fatigue fractures without the need to increase the size, and consequently the material consumption.

AMENDED CLAIMS

1.

A method for strengthening a gear wheel (1), wherein strengthening rings (3,4) are placed around the gear wheel and connected to the gear wheel teeth (2), **characterised in** that each tooth (2) is fixed like a theoretical beam between two extreme points in that two strengthening wheels (3, 4), each shaped on its inside in conformity with the gear wheel teeth (2), are shrink-fitted around the gear wheel.

2.

A method according to claim 1, **characterised in** that the strengthening rings (3, 4) are shrink-fitted around the gear wheel (1) in such manner that the strengthening rings (3, 4) will be firmly shrunk onto the gear wheel (1) with a material-technical tensile/-compressive strength within 80% of the 0.2% elastic elongation range of the material (steel).

3.

A method according to claim 2, **characterised in** that during the sizing process the toothed rim of the driving gear (1) is envisaged stretched out to a correspondingly larger circle, shrink fits being selected for this circle in accordance with the ISO tables of limits and fits, and that similar considerations are made for each strengthening ring (3, 4).

4.

A gear wheel (1) having surrounding strengthening rings (3,4) connected to the gear wheel teeth (2), **characterised in** that each tooth (2) is fixed like a theoretical beam between two extreme points in that two strengthening rings (3, 4), shaped on their insides in conformity with the gear wheel teeth (2), are shrink-fitted around the gear wheel.

5.

A gear wheel according to claim 4, **characterised in** that the strengthening rings (3, 4) are shrink-fitted in such manner that the strengthening rings (3, 4) will be firmly shrunk onto the gear wheel (1) with a material-technical tensile/compressive strength within 80% of the 0.2% elastic elongation range of the material (steel).

Fig.1.

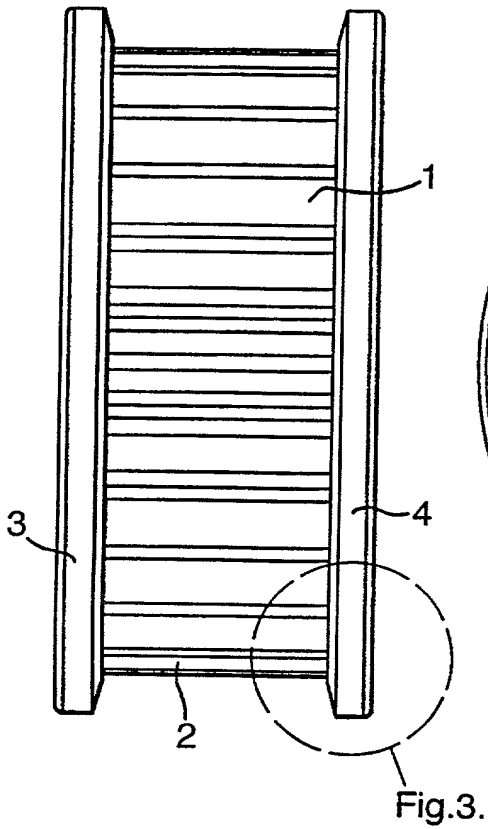


Fig.2.

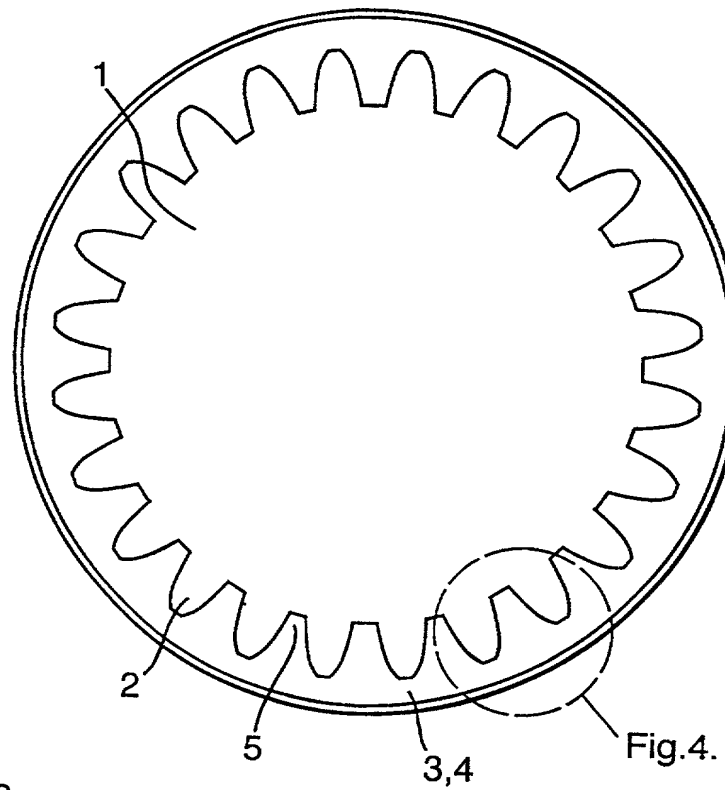


Fig.3.

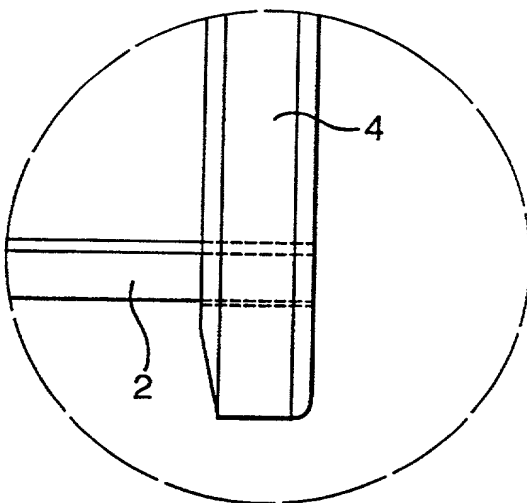
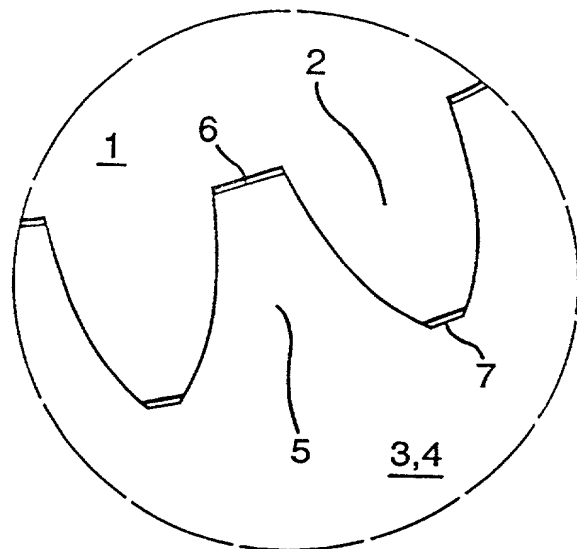


Fig.4.



2/2

Fig.5.

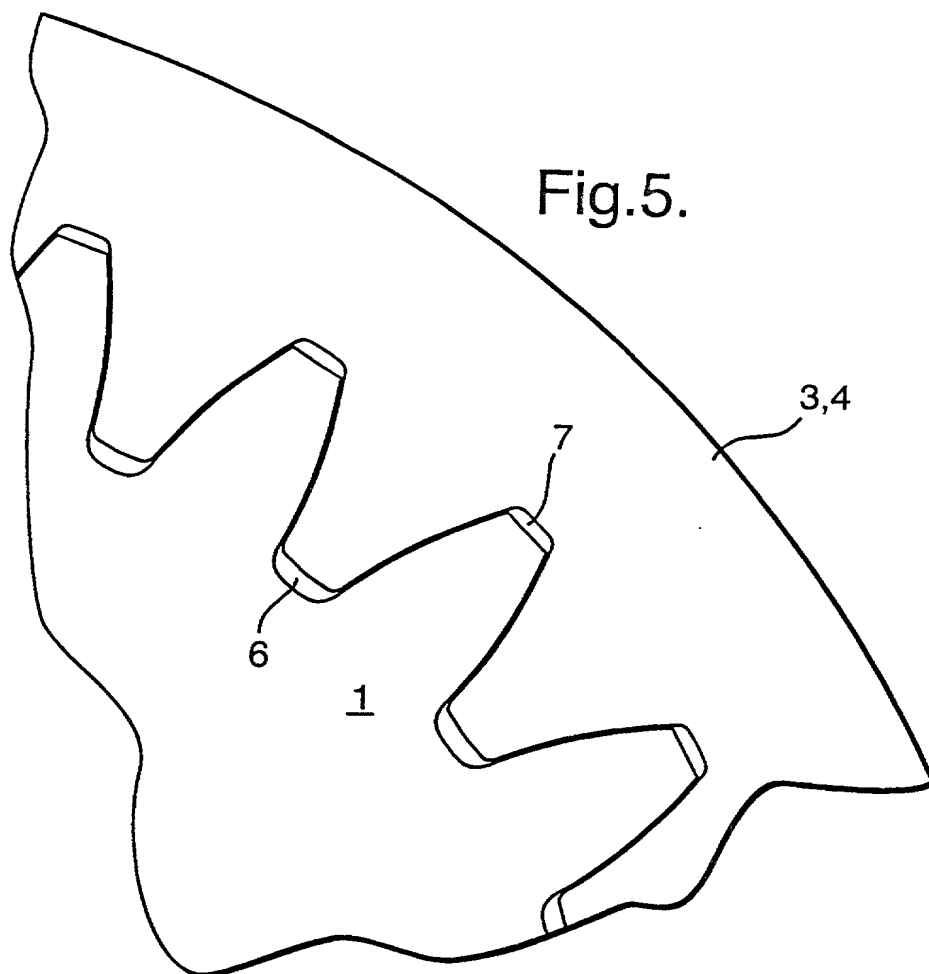
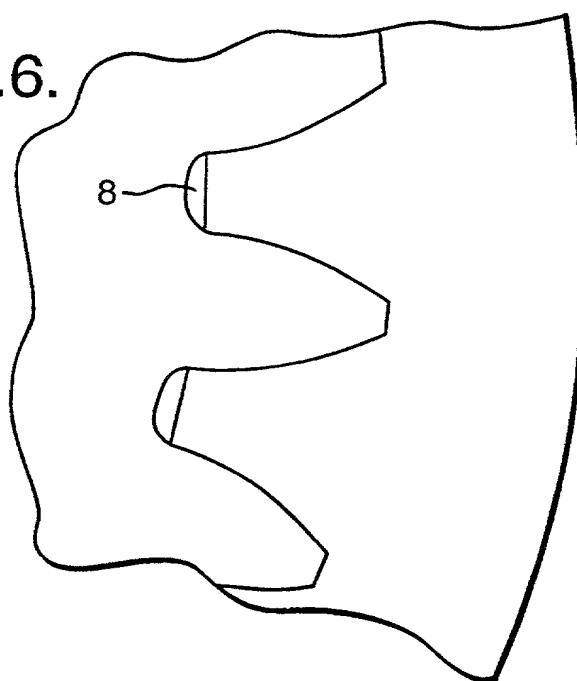


Fig.6.



COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY
(Includes Reference to Provisional and PCT International Applications)

Attorney's Docket No.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

METHOD FOR STRENGTHENING A GEAR WHEEL; AND A GEAR WHEEL

the specification of which (check only one item below):

☐ is attached hereto.

☐ was filed as United States application

Number _____

on _____

and was amended

on _____ (if applicable).

☒ was filed as PCT international application

Number PCT/N000/00260 ✓

on August 9, 2000 ✓

and was amended

on August 1, 2001 (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 (a)-(e) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. §119:

COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. §119
NORWAY ✓	19993835 ✓	10.08.99 ✓	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No
			<input type="checkbox"/> Yes <input type="checkbox"/> No

I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

(Application Number)

(Filing Date)

(Application Number)

(Filing Date)

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (CONT'D)
(Includes Reference to Provisional and PCT International Applications)

Attorney's Docket No.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose to the Office all information known to me to be material to the patentability as defined in Title 37, Code of Federal Regulations §1.56, which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application:

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. §120:

U.S. APPLICATIONS		STATUS (check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE	PATENTED	PENDING	ABANDONED
PCT APPLICATIONS DESIGNATING THE U.S.				
PCT APPLICATION NO.	PCT FILING DATE	U.S. APPLICATION NUMBERS ASSIGNED (if any)		

I hereby appoint the following attorneys and agent(s) to prosecute said application and to transact all business in the Patent and Trademark Office connected therewith and to file, prosecute and to transact all business in connection with international applications directed to said invention:

William L. Mathis	<u>17,337</u>	R. Danny Huntington	<u>27,903</u>	Gerald F. Swiss	<u>30,113</u>
Robert S. Swecker	<u>19,885</u>	Eric H. Weisblatt	<u>30,505</u>	Charles F. Wieland III	<u>33,096</u>
Platon N. Mandros	<u>22,124</u>	James W. Peterson	<u>26,057</u>	Bruce T. Wieder	<u>33,815</u>
Benton S. Duffett, Jr.	<u>22,030</u>	Teresa Stanek Rea	<u>30,427</u>	Todd R. Walters	<u>34,040</u>
Norman H. Stepno	<u>22,716</u>	Robert E. Krebs	<u>25,885</u>	Ronni S. Jillions	<u>31,979</u>
Ronald L. Grudziecki	<u>24,970</u>	William C. Rowland	<u>30,888</u>	Harold R. Brown III	<u>36,341</u>
Frederick G. Michaud, Jr.	<u>26,003</u>	T. Gene Dillahunt	<u>25,423</u>	Allen R. Baum	<u>36,086</u>
Alan E. Kopecki	<u>25,813</u>	Patrick C. Keane	<u>32,858</u>	Steven M. du Bois	<u>35,023</u>
Regis E. Slutter	<u>26,999</u>	Bruce J. Boggs, Jr.	<u>32,344</u>	Brian P. O'Shaughnessy	<u>32,747</u>
Samuel C. Miller, III	<u>27,360</u>	William H. Benz	<u>25,952</u>	Kenneth B. Leffler	<u>36,075</u>
Robert G. Mukai	<u>28,531</u>	Peter K. Skiff	<u>31,917</u>	Fred W. Hathaway	<u>32,236</u>
George A. Hovanec, Jr.	<u>28,223</u>	Richard J. McGrath	<u>29,195</u>		
James A. LaBarre	<u>28,632</u>	Matthew L. Schneider	<u>32,814</u>		
E. Joseph Gess	<u>28,510</u>	Michael G. Savage	<u>32,596</u>		



21839

and:

Address all correspondence to:



21839

Ronald L. Grudziecki
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, Virginia 22313-1404

Address all telephone calls to: Ronald L. Grudziecki at (703) 836-6620.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY (CONT'D)
(Includes Reference to Provisional and PCT International Applications)

Attorney's Docket No.

1-00 FULL NAME OF SOLE OR FIRST INVENTOR <u>Bjørn Eilertsen</u>		SIGNATURE <u>Bjørn Eilertsen</u>	DATE 04.01.02
RESIDENCE Hundvåg, Norway NOX		CITIZENSHIP Norwegian ✓	
POST OFFICE ADDRESS Hundvåg Ring 11, N-4085 Hundvåg, Norway			
FULL NAME OF SECOND JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF THIRD JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF FOURTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF FIFTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF SIXTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF SEVENTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			
FULL NAME OF EIGHTH JOINT INVENTOR, IF ANY		SIGNATURE	DATE
RESIDENCE		CITIZENSHIP	
POST OFFICE ADDRESS			